Apo-Rodagon-N

Enlarging with practically no loss in quality – Apo-Rodagon-N

A chain is only as strong as its weakest link. This saying is also true for photography. If a technically first-class print is to be produced, professional camera equipment must be mirrored by equally professional equipment in the lab. Modern films require excellent lenses – both for the actual taking process and for the enlargement – if they are to realise their full potential. Only then can their brilliance in sharpness and contrast be found completely in the print.

Reference quality for enlarging work

The Apo-Rodagon-N enlarging lenses deliver enlargements with practically no loss in quality within the range of 2x to more than 15x. As a result, these lenses are the lenses of choice both in custom labs and in the amateur dark room when first-class print quality is a must.

The apochromatic correction – made possible by special ED lenses – guarantees complete freedom from color fringing and also exceptional edge sharpness in your prints. A feature you will see not just in color enlargements, but also in black and white prints.

Focusing is made very easy thanks to the high maximum aperture of f/2.8 (50 mm) or f/4 (80, 105, 150 mm). The contrast of the lenses at maximum aperture is designed to ensure simple and precise focusing: Even without a focusing loupe, the correct focus "leaps to the eye" in the central image area so decisive for focus control at maximum aperture.

The working aperture is reached by stopping down only 1 – 2 stops. Stopping down by one stop will produce good, high-contrast results and can be particularly recommended if short exposure times are required. Stopping down by 2 stops guarantees a complete lack of vignetting right up to the extreme corners. Sharpness and contrast are at a maximum over the whole image field. While stopping down further will produce a slight increase in sharpness in the extreme corners, the performance in the center is reduced due to the effects of diffraction.

Apo-Rodagon-N enlarging lenses show incredibly low distortion values independent of the image reproduction scale of down to less than 0.1 %. Such values are no longer visible even in critical building or industrial shots. All Apo-Rodagon-N lenses are multi-coated. The technical features include click-stop focusing ring and illuminated f/number display for simple and safe work in the dark room. Up to the focal length of 105 mm, the pre-selection ring and the disengageable facility of the click-stop aperture ring offer increased performance and ease of focusing.

Apo-Rodagon-N 50 mm f/2.8 and 80 mm f/4

Apo-Rodagon-N at a glance

Type	Optical design	Maximum film format	Recommended scale (optimal)	Working aperture from
Apo-Rodagon-N 50 mm f/2.8	6 elements in 4 groups	24 x 36 mm	2x to 20x	4
Apo-Rodagon-N 80 mm f/4	7 elements in 5 groups	6 x 7 cm	2x to 15x	5.6
Apo-Rodagon-N 105 mm f/4	7 elements in 5 groups	6 x 9 cm	2x to 15x	5.6
Apo-Rodagon-N 150 mm f/4	7 elements in 5 groups	4 x 5"	2x to 15x	8

Apo-Rodagon-N for micro and macro photography

Utilize the exceptional imaging quality of your enlarging lenses for taking purposes in both the micro and macro ranges. For use on a camera, all you need is a helical mount as a focusing device.

For enlarging lenses up to a focal length of 135 mm Rodenstock can supply the Modular-Focus with helical focusing. It extends to 25 mm and allows connection to almost all commercial 35 mm systems and video cameras with exchangeable lenses via commercial T2 adapters or C mounts.

Detailed information can be found in the special product information "Lenses for micro and macro photography".

Helical mount Modular-Focus at the shortest setting with Rodenstock enlarging lens mounted

Apo-Rodagon-N

Specifications

Max. aperture	Focal length	Max. film format	Optimum magnification	Smallest aperture	Filter screw size	Film-to-flange distance at ∞	Overall length	Max. lens barrel ∅	Screw mount (Leica)	Mounting flange-to-rear-edge distance
					a	b	c	d	e	f
1:2.8	50 mm	24x36 mm	10x	16	M 40.5x0.5	46 mm	46.5 mm	50 mm*)	M 39x1/26"	15.7 mm
1:4	80 mm	6x7 cm	10x	22	M 40.5x0.5	77 mm	43 mm	50 mm*)	M 39x1/26"	12.2 mm
1:4	105 mm	6x9 cm	6x	22	M 40.5x0.5	99 mm	54.3 mm	50 mm*)	M 39x1/26"	18.0 mm
1:4	150 mm	9x12 cm/4x5"	6x	32	M 67x0.75	144 mm	78.2 mm	70 mm	M 50x0.75	28.7 mm

*) Plus 2 mm for aperture ring switch lever to half click stops or to continuous setting.

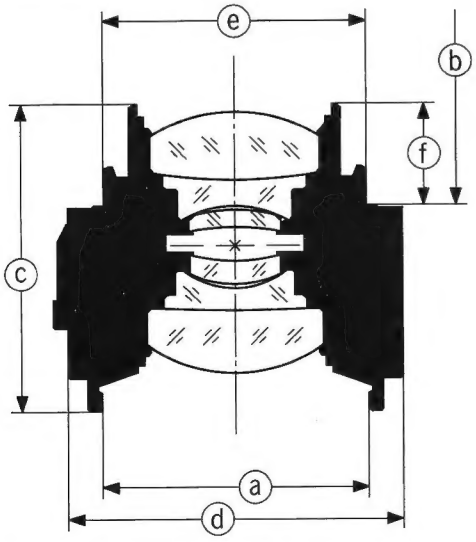
Further features of the Apo-Rodagon-N 50 mm f/2.8, 80 mm f/4, 105 mm f/4

- Illuminated f/number display
- Pre-setting ring (pre-set stop for the working aperture by pulling the aperture ring)
- Aperture setting adjustable by lever to half click stop or continuous setting

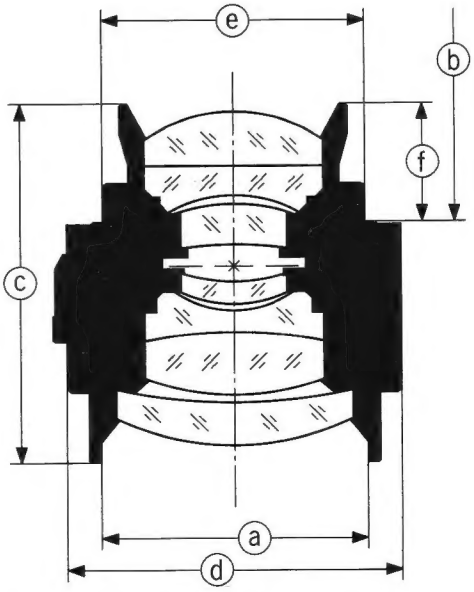
Further features of the Apo-Rodagon-N 150 mm f/4

- Illuminated f/number display
- Aperture setting by full click stops

Element sections



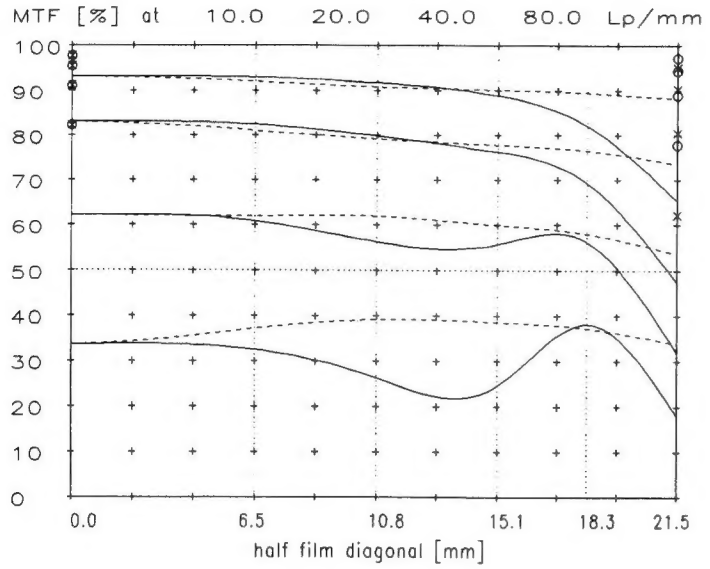
Apo-Rodagon-N 1:2.8/50 mm
Optical design: 6 elements in 4 groups
Measurements ⓐ to ⓕ see tabulation above



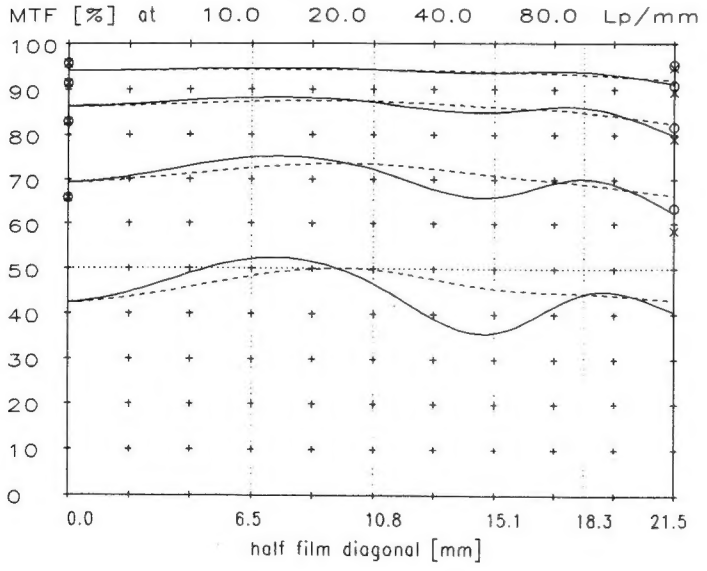
Apo-Rodagon-N 1:4/105 mm
Optical design: 7 elements in 5 groups
Measurements ⓐ to ⓕ see tabulation above

Apo-Rodagon-N 1:2.8/50 mm

MTF at ratio 10x f/2.8



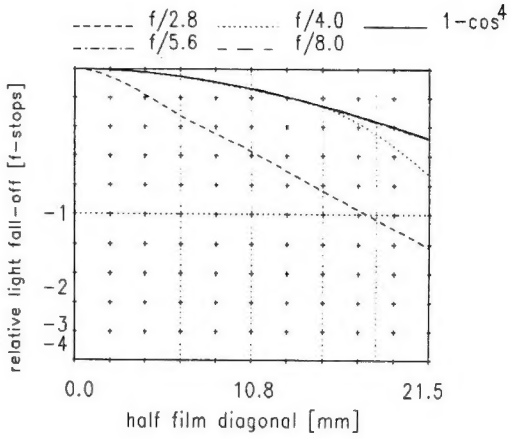
MTF at ratio 10x f/5.6



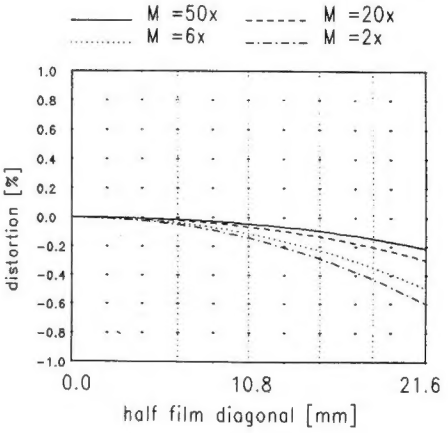
——— sagittal, ○ Diffraction limited value
------ meridional, × Diffraction limited value

Named frequencies [line pairs/mm] in modular transfer function (MTF) as well as diagrams of relative light fall-off, distortion and longitudinal color aberration refer to film plane.

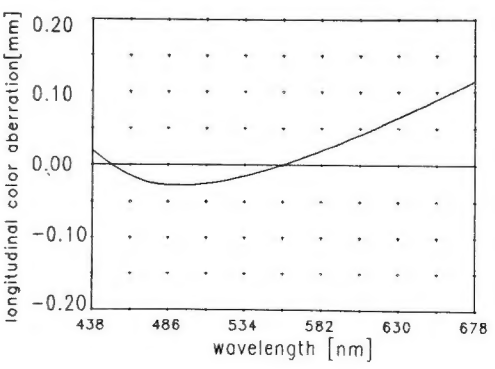
relative light fall-off at ratio 10x



Distortion at ratio 50x to2x

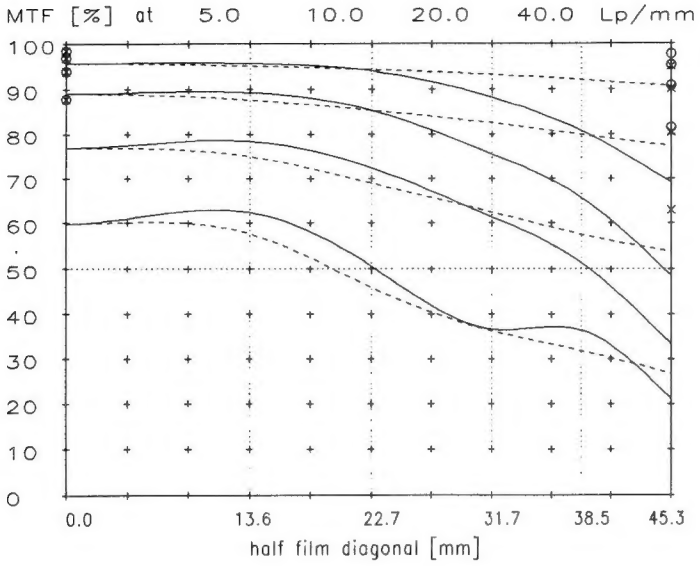


Longitudinal color aberration at ratio 10x

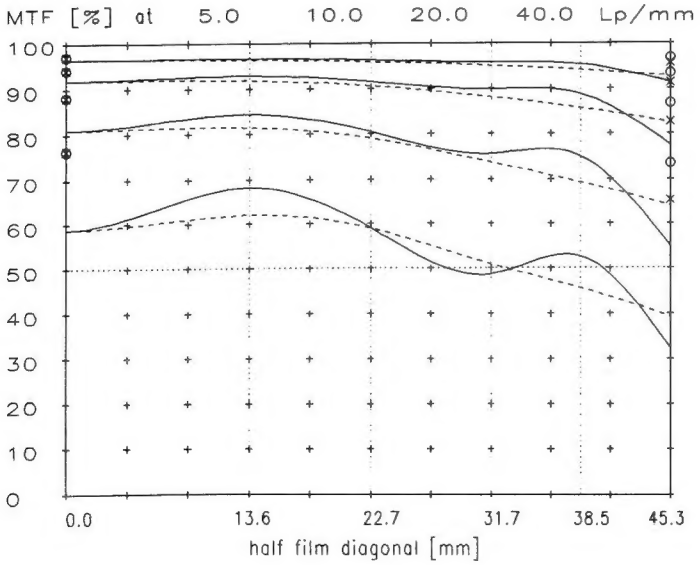


Apo-Rodagon-N 1:4/80 mm

MTF at ratio 10x f/4



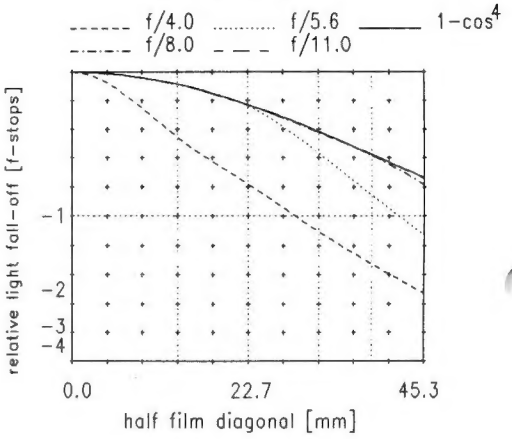
MTF at ratio 10x f/8



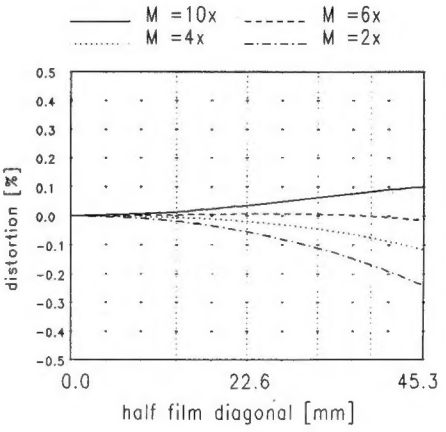
——— sagittal, o Diffraction limited value
- - - - - - meridional, × Diffraction limited value

Named frequencies [line pairs/mm] in modular transfer function (MTF) as well as diagrams of relative light fall-off, distortion and longitudinal color aberration refer to film plane.

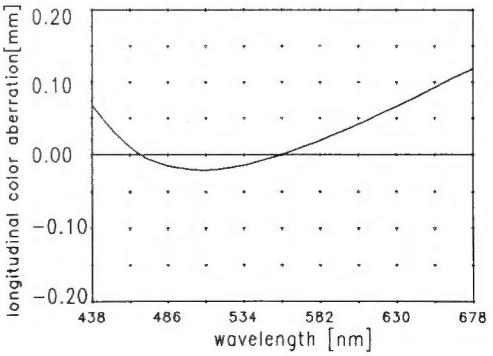
relative light fall-off at ratio 10x



Distortion at ratio 10x to2x

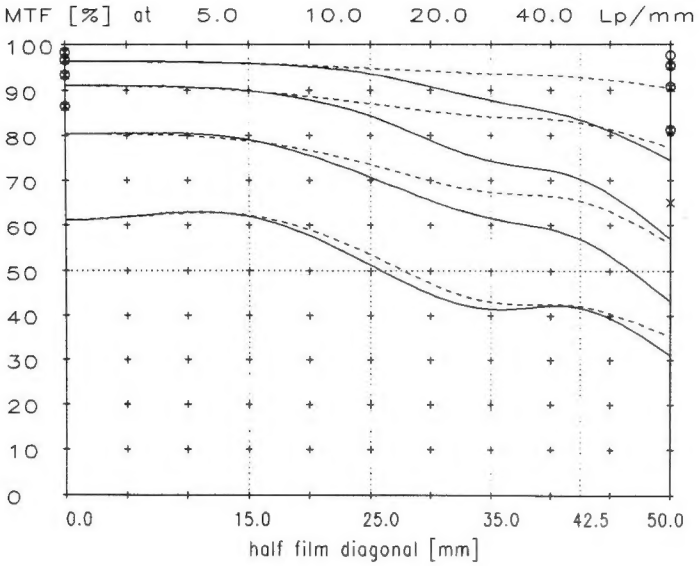


Longitudinal color aberration at ratio 10x

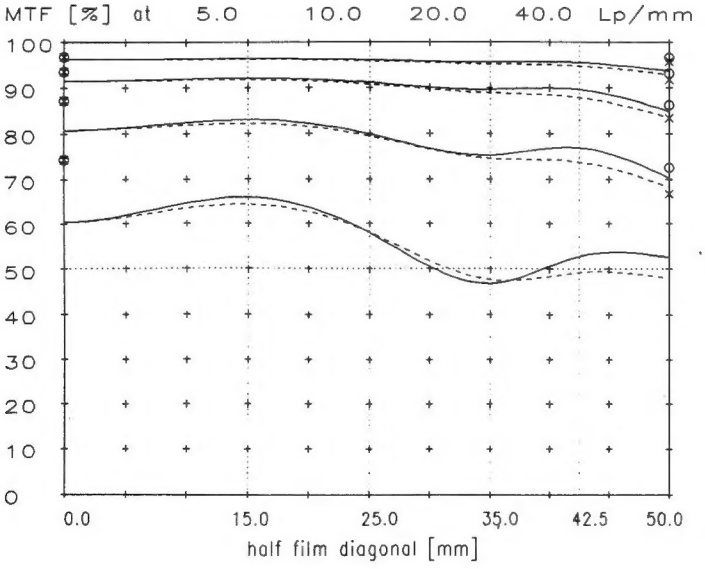


Apo-Rodagon-N 1:4/105

MTF at ratio 6x f/4



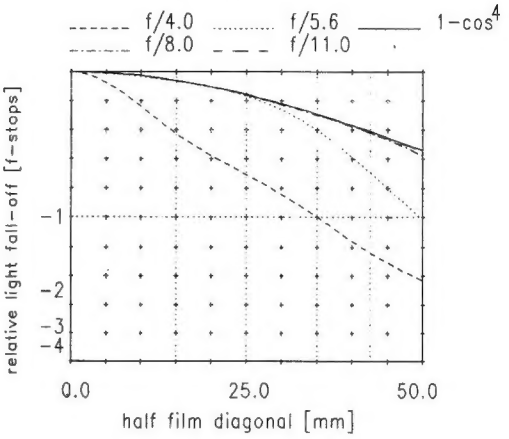
MTF at ratio 6x f/8



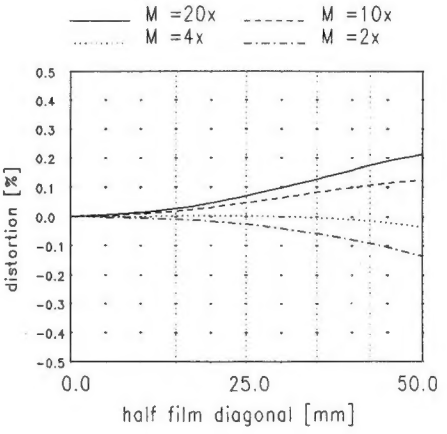
——— sagittal, o Diffraction limited value
------ meridional, × Diffraction limited value

Named frequencies [line pairs/mm] in modular transfer function (MTF) as well as diagrams of relative light fall-off, distortion and longitudinal color aberration refer to film plane.

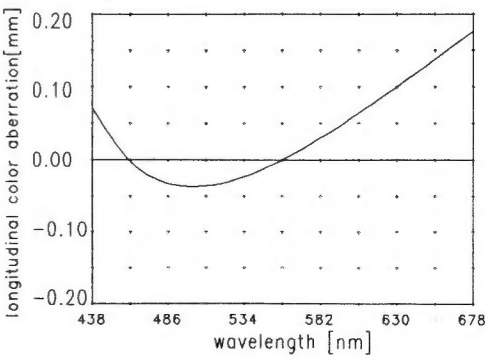
relative light fall-off at ratio 6x



Distortion at ratio 20x to2x



Longitudinal color aberration at ratio 6x



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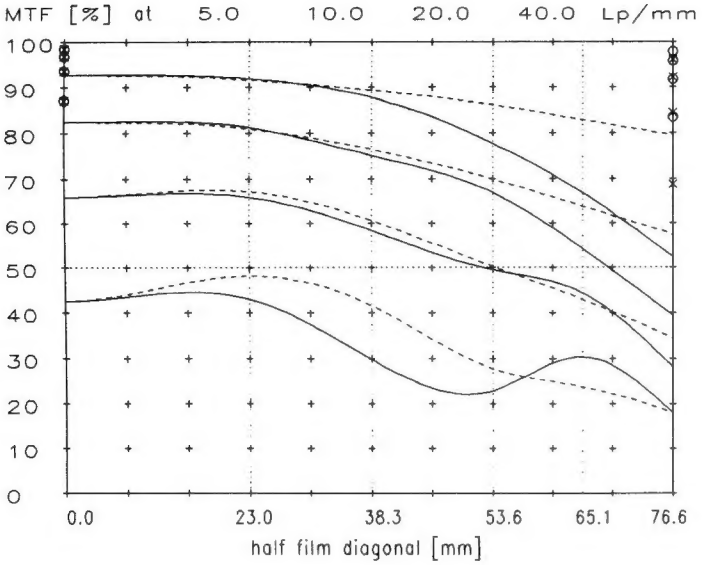
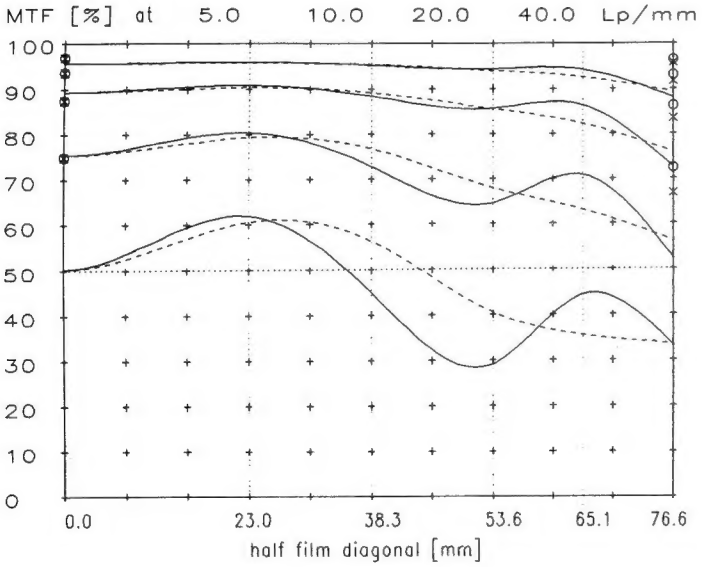
Apo-Rodagon-N 1:4/150 mm

MTF at ratio 6x f/4



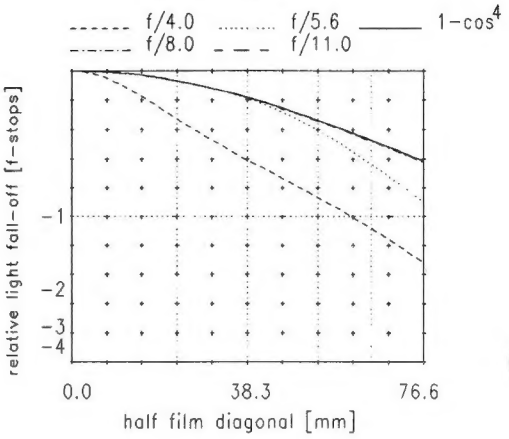
MTF at ratio 6x f/8



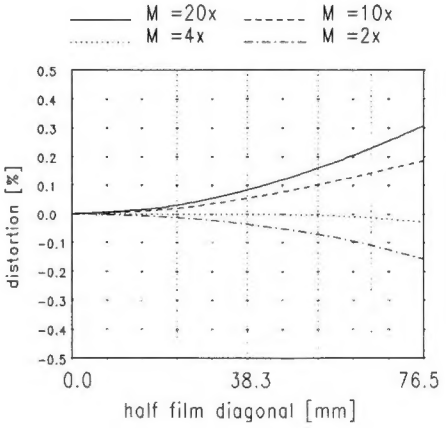
——— sagittal, o Diffraction limited value
------ meridional, x Diffraction limited value

Named frequencies [line pairs/mm] in modular transfer function (MTF) as well as diagrams of relative light fall-off, distortion and longitudinal color aberration refer to film plane.

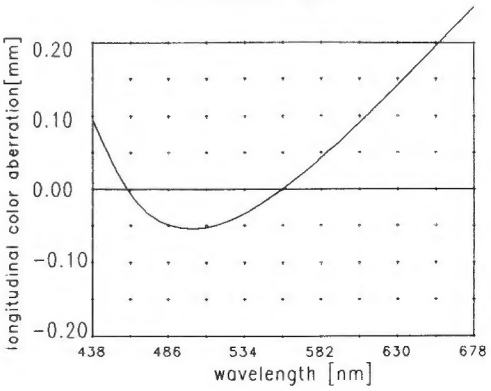
relative light fall-off at ratio 6x



Distortion at ratio 20x to2x



Longitudinal color aberration at ratio 6x



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